

REMARKS

In the Office Action, the Examiner again rejected claims 5, 7, 8 and 10 pursuant to 35 U.S.C. § 102(b) as being anticipated by Smith et al. '095 (U.S. Patent No. 5,311,095). Claims 5-8, 10 and 11 were rejected pursuant to 35 U.S.C. § 103(a) as being unpatentable over Smith et al. '095 in view of Smith et al. '406 (U.S. Patent No. 4,366,406). Applicants respectfully request reconsideration of the rejections of claims 5-8 and 10-11, including independent claim 5.

Claim 5 has been amended for clarity and has not been narrowed. Independent claim 5 recites transducer material arranged as an array of elements, where the array is a multidimensional array of $M \times N$ elements with both M and N greater than 1, and at least two electrically conductive matching layers on the transducer material on each one of the elements.

Smith et al. '095 alone do not disclose the at least two electrically conductive acoustic impedance matching layers on each one of the elements. The Examiner alleges the claims, before amendment, allow for a single layer conductive matching layer where the layer on each element counts as a matching layer. However, Smith '095 does not show two conductive acoustic matching layers on each one of the elements.

Regarding the rejection of Smith '095 in view of Smith '406, the Examiner notes that Smith '095 show a single thickness of acoustic matching material (40). The Examiner alleges obviousness to provide two conductive matching layers based on the two matching layer teaching of Smith '406. The Examiner alleges any layering of the matching is necessarily conductive due to the overlaying ground foil of Smith '095. However, both Smith '095 and Smith '406 disclose the conductive foil immediately adjacent the PZT (Smith '095 Col. 5, lines 37-42; and Smith '406 Col. 2, lines 41-50 and Figure 1). Smith '406 showing multiple matching layers teaches very specific non-conductive materials (plastic and glass) to achieve the desired two layer acoustic match (Col. 2, lines 50-54 and 59-64; and Col. 3, lines 45-50). A materials problem results since other materials may not be found for the desired graduation of matching in the multiple layers (Col. 3, lines 47-50 and 54-60).

Given this teaching specific materials of Smith '406, the alternative of the foil next to the PZT with the specific non-conducting matching-layer materials would have been used. As indicated by Smith '406, a materials problem results for multi-matching layers, so two conductive matching layers would not have been obvious.

A person of ordinary skill in the art would not have used the matching layers of Smith '406 with the conductive matching layer of Smith '095 for another reason. Smith '095 prefers a $\frac{1}{4}$ wavelength matching layer (Col. 5, lines 1-5). However Smith '406 teaches $\frac{1}{4}$ wavelength matching as being undesired (Col. 1, lines 13-15 and 50-54). Smith '406 teaches away from the conductive $\frac{1}{4}$ matching of Smith '095.

Dependent claims 6-8 and 10-11 are allowable for the same reasons as base claim 5. Further limitations patentably distinguish from Smith '095 and Smith '406. For example, claim 7 recites three electrically conductive matching layers. The cited references do not suggest three conductive matching layers. As another example, claim 11 recites signal traces connected with one of the electrically conductive matching layers. The prior art provides for a ground foil (Smith '095) or no mention of ground vs. signal (Smith '046).

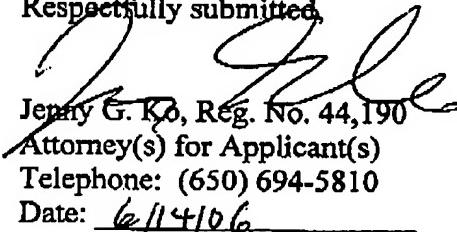
CONCLUSION:

Applicants respectfully submit that all of the pending claims are in condition for allowance and seeks early allowance thereof. If for any reason, the Examiner is unable to allow the application but believes that an interview would be helpful to resolve any issues, he is respectfully requested to call the undersigned at (650) 694-5810 or Craig Summerfield at (312) 321-4726.

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Respectfully submitted,


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